

22
CLAIMS

I claim:

1. An apparatus for wrapping an elongated article, comprising:

an advancing mechanism engaged with the elongated article, wherein the advancing mechanism is operable to advance the elongated article in a direction along a longitudinal axis defined by the elongated article;

5 a first web supply arrangement for supply a first web of wrapping material;
 a second web supply arrangement for supplying a second web of wrapping material;

 a web application arrangement for applying the first and second webs of wrapping material to the elongated article as the elongated article is advanced by the
10 advancing mechanism, wherein the first and second webs of wrapping material area applied such that adjacent side areas of the first and second webs of wrapping material overlap each other; and

 a bonding arrangement for bonding the overlapping side areas of the first and second webs together to secure the first and second webs about the elongated article;

15 wherein the first and second web supply arrangements each include a splicing arrangement for continuously supplying the first and second webs to the web application arrangement.

2. The apparatus of claim 1, wherein the advancing mechanism advances the elongated article in a first direction, and wherein the first and second web supply arrangements are oriented so as to supply the first and second webs of wrapping material in a second direction transverse to the first direction.

3. The apparatus of claim 2, wherein the first and second web supply arrangements each include a pair of roll supports, each of which rotatably supports a roll of wrapping material, and a drive arrangement for each roll of wrapping material for unwinding the roll of wrapping material, wherein the splicing arrangement of the first and second web
5 supply arrangements is operable to splice together a trailing end of one of the rolls of wrapping material with a leading end of the other of the rolls of wrapping material.

4. The apparatus of claim 3, wherein each of the pair of roll supports associated with each of the first and second web supply arrangements includes a hoist mechanism for engaging a roll of wrapping material with the roll support.

5. The apparatus of claim 3, wherein each splicing arrangement includes a web storage mechanism to enable the associated web of wrapping material to be supplied while the trailing end of the web of wrapping material is being spliced by the splicing arrangement to the leading end of another one of the webs of wrapping material.

6. The apparatus of claim 3, wherein each drive arrangement engages an outer periphery of the roll of wrapping material so as to unwind the roll of wrapping material.

7. The apparatus of claim 2, wherein the advancing mechanism includes an inlet section having a compression arrangement for compressing the elongated article as the elongated article is advanced in the first direction, and wherein the web application arrangement is located downstream of the compression arrangement.

8. The apparatus of claim 2, further comprising a web turning arrangement associated with each of the first and second web supply arrangements for altering the direction of movement of the first and second webs of wrapping material to the first direction from the second direction.

9. An apparatus for wrapping an elongated article, comprising:

advancement means for advancing the elongated article along a longitudinal axis defined by the elongated article;

5 first and second continuous web supply means for continuously supplying first and second webs of wrapping material;

application means for applying the first and second webs of wrapping material to the article as the article is advanced by the advancement means, wherein the application means is operable to apply the first and second webs about the elongated article such that portions of the first and second webs of wrapping material overlap each other; and

10 bonding means for bonding the overlapping portions of the first and second webs together.

10. The apparatus of claim 9, wherein each of the first and second continuous web supply means comprises a pair of web supply stations for supplying a web of wrapping material from a pair of web sources, and splicing means for splicing together a trailing end of a web of wrapping material from one of the web sources with a leading end of a web of wrapping material from another of the web sources.

11. The apparatus of claim 10, wherein the advancement means advances the elongated article in a first direction, and wherein the first and second continuous web supply means are arranged to supply the first and second continuous webs of wrapping material in a second direction transverse to the first direction, and further comprising web diversion means interposed between the first and second continuous web supply means and the advancement means for changing the direction of movement of the first and second continuous webs of wrapping material to the first direction from the second direction at a location upstream of the application means.

12. The apparatus of claim 11, wherein the web diversion means comprises first and second web turning members with which the first and second continuous webs of wrapping material, respectively, are engaged, wherein the turning members are oriented so as to alter the direction of movement of each of the first and second webs of wrapping material from the second direction to the first direction.

13. The apparatus of claim 10, wherein the splicing means comprises a splicing assembly for temporarily maintaining stationary and connecting together the trailing end of one of the webs of wrapping material and the leading end of the other of the webs of wrapping material while a web of wrapping material is continuously supplied to the advancement means, and a web storage arrangement located downstream of the splicing assembly for maintaining a length of the web of wrapping material upstream of the application means that is supplied to the application means during operation of the splicing assembly.

14. The apparatus of claim 13, wherein the web storage arrangement comprises a first series of stationary rollers and a second series of rollers mounted to a movable arm arrangement, wherein the first and second series of rollers are configured and

arranged to supply the web of wrapping material to the application means via movement of
5 the arm arrangement to move the second series of rollers toward the first series of rollers
during operation of the splicing assembly.

15. The apparatus of claim 10, wherein each web supply station comprises a roll support for rotatably supporting a roll of wrapping material, and an unwind mechanism for unwinding the web of wrapping material from the roll of wrapping material.

16. The apparatus of claim 15, further comprising a hoist associated with each web supply station for manipulating a roll of wrapping material and engaging the roll of wrapping material with the roll support.

17. The apparatus of claim 10, wherein the elongated article comprises a compressible stack, and wherein the advancement means includes a compression arrangement located upstream of the application means for compressing the stack prior to application of the first and second webs of wrapping material.

18. A method of wrapping an elongated article, comprising the steps of:
advancing the elongated article in a direction along a longitudinal axis defined
by the elongated article;

continuously supplying first and second webs of wrapping material to a web
5 application arrangement;

applying the continuous first and second webs of wrapping material about the elongated article via the web application arrangement; and

securing the first and second webs together to form a sleeve-type wrapper about the elongated article.

19. The method of claim 18, wherein the step of continuously supplying first and second webs of wrapping material is carried out by supplying each web of wrapping material from one of a pair of web supply stations, wherein each web supply station includes a supply of web material, and further comprising the step of splicing together a web of
5 wrapping material from one of the web supply stations with a web of wrapping material from the other of the web supply stations so as to continuously supply each of the first and second webs of wrapping material.

20. The method of claim 19, wherein the splicing step is carried out by temporarily maintaining stationary a trailing end of one of the webs of wrapping material and a leading end of another of the webs of wrapping material, and connecting together the trailing end and the leading end of the webs of wrapping material, while continuously
5 supplying the first and second webs of wrapping material to the web application arrangement.

21. The method of claim 20, wherein the step of continuously supplying the first and second webs of wrapping material to the web application arrangement is carried out by supplying each web of wrapping material from a web storage arrangement located upstream of the web application arrangement and downstream of a splicing station at which
5 the splicing step is carried out.

22. The method of claim 21, wherein the web storage arrangement includes a series of stationary rollers and a series of movable rollers, wherein the web is trained about the stationary rollers and the movable rollers in a serpentine configuration, and wherein the step of continuously supplying the web is carried out by moving the movable rollers toward
5 the stationary rollers to enable the web to be supplied downstream of the web storage arrangement while the web is maintained stationary at the splicing station upstream of the storage arrangement.

23. The method of claim 19, wherein the first and second webs of wrapping material are supplied in a direction of movement transverse to the direction of movement of the elongated article, and further comprising the step of altering the direction of movement of the first and second webs of wrapping material upstream of the web application
5 arrangement so as to apply the webs of wrapping material to the elongated article while the first and second webs of wrapping material are supplied in the same direction of movement as the elongated article.

24. The method of claim 18, further comprising the step of compressing the elongated article prior to application of the first and second webs of wrapping material about the article.

25. The method of claim 24, further comprising the step of maintaining compression of the elongated article subsequent to application of the first and second webs of wrapping material about the article.

26. The method of claim 25, wherein the step of securing the first and second webs together is carried out by applying an adhesive to overlapping portions of the first and second webs of wrapping material, applying pressure to the overlapping portions of the first and second webs of wrapping material subsequent to application of the adhesive, and
5 maintaining compression on the elongated article subsequent to application of pressure to the overlapping portions of the first and second webs of wrapping material for a duration sufficient to enable the adhesive to set.

27. The method of claim 18, wherein the step of securing the first and second webs together is carried out by placing an adhesive between overlapping areas of the first
10 and second webs, and applying external pressure to the overlapping areas of the first and second webs against an internal backing plate located between the elongated article and the overlapping areas of the first and second webs.

28. The method of claim 27, wherein the first and second webs are placed into overlapping relationship outwardly of the backing plate and about the elongated article.